

7. REGULATIONS AND ADVISORIES

Because of its potential to cause adverse health effects in exposed people, a number of regulations and guidelines have been established for tin by various national and state agencies. These values are summarized in Table 7-1.

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to Tin and Compounds

Agency	Description	Information	References
<u>NATIONAL</u>			
Regulations:			
a. Air:			
OSHA	PEL TWA		OSHA 1989
	Inorganic compounds, except oxides, as Sn	2 mg/m ³	(29 CFR 1910.1000)
	Organic compounds, as Sn	0.1 mg/m ³ skin	Table 2-1-A
	Tin oxide, as Sn	2 mg/m ³	
b. Water:			
EPA OWRS	General permits under NPDES	Yes	40 CFR 122, Appendix D, Table IV
	Total tin		
U.S. Congress	Organotin Antifouling Paint Control Act of 1988	4 µg organotin/cm ² /day	EPA 1988c (Pub. Law 100-333)
c. Food:			
FDA	Indirect food additives	Yes	FDA 1989
	Adhesives and components of coatings and polymers		(21 CFR 155.200, 172.810, 175.300, oxide, 184.1845)
	Dibutyltin oxide, hydroxybutyltin		
monobutyltin	177.2420, tris(2-ethylhexoate, stannous chloride)		
d. Other:			
EPA OPP	Cancellation/Restriction of Registration for Tributyltin Antifoulants	Yes	EPA 1988c
EPA OSW	Groundwater monitoring list (Appendix IX) (Total tin)	Yes	EPA 1987c (40 CFR 261)
EPA OTS	Health and Safety Reporting Rule	Yes	EPA 1988d (40 CFR 716.120)
	Dibutyltin dilaurate		
	Dibutyltin bis(lauryl mercaptide)		
	Dibutyltin bis(isooctylmaleate)		
	Monobutyltin tris(isooctyl) mercaptoacetate		
	Preliminary Assessment Information	Yes	40 CFR 712.30
	Reporting Rule		
	Dibutyltin dilaurate		
	Dibutyltin bis(lauryl mercaptide)		
	Dibutyltin bis(isooctylmaleate)		
	Monobutyltin tris(isooctyl) mercaptoacetate		
	Dimethyltin S,S' bis(isooctyl) mercaptoacetate)		
	Dibutyltin S,S' bis(isooctyl) mercaptoacetate)		
	Monomethyltin tris(isooctyl) mercaptoacetate)		

7. REGULATIONS AND ADVISORIES

TABLE 7-1 (Continued)

Agency	Description	Information	References
<u>NATIONAL</u> (Cont.)			
Guidelines:			
a. Air:			
ACGIH	TLV TWA Metal Oxide and inorganic compounds, except SnH_4 , as Sn Organic compounds, as Sn	2 mg/m ³ 2 mg/m ³ 0.1 mg/m ³ skin 2 mg/m ³	ACGIH 1990
NIOSH	REL TWA		NIOSH 1990
b. Other:			
EPA	Carcinogenic Classification Tin and Compounds RfD (oral)	0.6 mg/kg/day*	EPA 1987
<u>STATE</u>			
Regulations and Guidelines:			
a. Air:	Acceptable ambient air concentrations, as Sn		NATICH 1989
Connecticut		40 µg/m ³ (8 hr)	
Nevada		4.80E-2 mg/m ³ (8 hr)	
North Dakota		2.0E-2 mg/m ³ (8 hr)	
Virginia		1.60 µg/m ³ (24 hr)	

* This value is undergoing Agency review, but has not been validated (EPA 1992).

ACGIH = American Conference of Governmental Industrial Hygienists; EPA = Environmental Protection Agency;
 FDA = Food and Drug Administration; NIOSH = National Institute for Occupational Safety and Health;
 NPDES = National Pollutant Discharge Elimination System; OPP = Office of Pesticide Programs;
 OSHA = Occupational Safety and Health Administration; OSW = Office of Solid Waste; OTS = Office of Toxic
 Substances; OWRS = Office of Water Regulations and Standards; PEL = Permissible Exposure Limit;
 REL = Recommended Exposure Limit; Sn = tin; TLV = Threshold Limit Value; TWA = Time-Weighted Average;
 U.S. = United States

